

## In the Claims

ai 1. (Currently Amended) An eye viewing device comprising:  
a housing having an observer end and a patient end;  
an illumination system at least partially disposed  
in said housing;

an imaging system at least partially disposed in  
said housing;  
an image sensor ~~for~~ generating image signals;  
a processor system ~~for~~ processing image information  
corresponding to image signals generated by said image sensor;  
a module holder defined by said housing at said  
~~patient-observer~~ end; and  
a replaceable module comprising at least said image  
sensor replaceably received in said holder.

2. (Original) The eye viewing device of claim 1, wherein  
said replaceable module further comprises said processor  
system.

3. <sup>5</sup> (Original) The eye viewing device of claim 1, further  
comprising an electronic display in communication with said  
processor system.

4. <sup>8</sup> (Currently Amended) The eye viewing device of claim  
1, wherein said replaceable module further comprises ~~said a~~  
display in communication with said processor system.

5. <sup>9</sup> (Currently Amended) The eye viewing device of claim  
1, <sup>2/8</sup> wherein said display is externally mounted on said module.

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8. (Currently Amended) The eye viewing device of claim 1, ~~8~~ wherein said display is externally mounted on a face of said module.

11  
8 7. (Currently Amended) The eye viewing device of claim 1, ~~8~~ wherein said display is ~~externally~~ rigidly mounted on said module.

12  
8 8. (Currently Amended) The eye viewing device of claim 1, ~~8~~ wherein said display is internally mounted in an interior of said module.

13  
8 9. (Currently Amended) The eye viewing device of claim 1, ~~8~~ wherein said display is mounted on a top of said housing.

14  
10. (Currently Amended) The eye viewing device of claim 1, wherein said device includes a head worn display apparatus which includes ~~said~~ a display.

15  
11. (Currently Amended) The eye viewing device of claim 1, wherein said device includes a communication link component ~~for~~ facilitating communication of image information externally from said housing.

16  
15 12. (Currently Amended) The eye viewing device of claim 1, ~~11~~ wherein said replaceable module further comprises said communication link.

17  
13. (Currently Amended) The eye viewing device of claim 11, wherein said communication link includes a cable.

18  
14. (Currently Amended) The eye viewing device of claim

<sup>15</sup>  
~~11~~, wherein said communication link comprises a wireless communication link.

<sup>15</sup> <sup>19</sup>  
~~15~~. (Currently Amended) The eye viewing device of claim ~~11~~, wherein said communication link comprises a transportable memory structure.

<sup>3</sup>  
~~16~~. (Original) The eye viewing device of claim 2, further comprising an electronic display.

<sup>15</sup> <sup>20</sup>  
~~11~~. (Currently Amended) The eye viewing device of claim ~~11~~, wherein said device further includes an electronic display spaced apart from said housing and said module, and in communication with said communication link.

<sup>21</sup>  
~~18~~. (Currently Amended) The eye viewing device of claim 1, wherein said housing and said module include complementary mating electrical connectors which are adapted to mate when said module is received in said holder.

<sup>21</sup> <sup>22</sup>  
~~4,18~~. (Currently Amended) The eye viewing device of claim ~~4,18~~ wherein said processor system is incorporated in said housing and wherein said mating electrical connectors are adapted to provide breakable communication between said image sensor and said processor system.

<sup>21</sup> <sup>23</sup>  
~~4,18~~. (Currently Amended) The eye viewing device of claim ~~4,18~~ wherein said processor system is incorporated in said module, and wherein said device further includes a display mounted on said housing, wherein said mating electrical connectors provide breakable communication between said processor system and said display.

6  
21. (Original) The device of claim 3, wherein said device includes a battery power supply incorporated in said housing, wherein said mating connectors provide breakable communication between an electronic component of said module and said power supply.

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22. (Currently Amended) The device of claim 3, wherein said module further comprises a communication link component for facilitating communication of image information externally from said housing.

Claims 23-45 (Cancelled)

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46. (Currently Amended) An eye viewing device system comprising:

a housing having an observer end and a patient end;  
an illumination system at least partially disposed in said housing;

an imaging system at least partially disposed in said housing;

a module holder defined by said housing at said patient observer end; and

at least first and second replaceable modules, each replaceably receivable in said holder, said holder adapted to receive one of said modules at a given time, wherein said first module comprises an eyepiece lens for facilitating direct view of an eye structure and said second module comprises at least an image sensor for generating image signals corresponding to an eye structure.

36  
47. (Original) The system of claim 46, wherein said

second module further comprises an electronic display.

37 35  
48. (Original) The system of claim 46, wherein said second module further comprises a face mounted display.

38 35  
49. (Original) The system of claim 46, wherein said second module further comprises an externally mounted display.

39 35  
50. (Original) The system of claim 46, wherein said second module further comprises an electronic display mounted in an interior of said module.

40 35  
51. (Original) The system of claim 46, further comprising a communication link component for facilitating communication of image information from said housing.

41 35  
52. (Original) The system of claim 46, wherein said housing is a hand-held housing.

42 35  
53. (Original) The system of claim 46, wherein said holder and said second module comprise complementary mating connectors.

43 35  
54. (New) The system of claim 46, wherein said illumination system projects a converging cone of light.

44 35  
55. (New) The system of claim 46, wherein said illumination system and said imaging system include a common objective lens.

45 35  
56. (New) The system of claim 46, wherein said illumination system projects a converging cone of light

converging at an apex, and wherein said imaging system includes an aperture stop disposed to be substantially coaxial with respect to an imaging axis of said imaging system and substantially conjugate said apex.

46 35  
57. (New) The system of claim 46, wherein said imaging system includes an aperture stop, and wherein said eye viewing device includes an objective lens and an internal light source, wherein a surface of said objective lens closest to said light source is curved substantially concentric about a center of an aperture of said aperture stop, whereby internal glare in said device is reduced.

47 35  
58. (New) The system of claim 46, wherein said illumination system projects through a pupil, and wherein said imaging system includes an aperture disposed substantially coaxial about an imaging axis of said imaging system and substantially conjugate said pupil, when said illumination system projects substantially a maximum amount of light through said pupil.

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48 24  
59. (New) The eye viewing device of claim 1, wherein said housing is hand held, and wherein said device is configured for viewing a retina.

49 25  
60. (New) The eye viewing device of claim 1, wherein said housing is hand held, wherein said device is configured for viewing a retina, and wherein said replaceable module further comprises said processor system.

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61. (New) The eye viewing device of claim 1, wherein said housing is hand held, wherein said device is configured for

viewing a retina, wherein said replaceable module further comprises said processor system, and wherein said eye viewing device further includes an electronic display in communication with said processor system.

<sup>27</sup>  
~~62.~~ (New) The eye viewing device of claim 1, wherein said housing is hand held, wherein said device is configured for viewing a retina, wherein said replaceable module further includes a display in communication with said processor system, and wherein said display is externally mounted on said replaceable module.

<sup>28</sup>  
~~63.~~ (New) The eye viewing device of claim 1, wherein said housing is hand held, wherein said device is configured for viewing a retina, wherein said replaceable module further includes a display in communication with said processor system, and wherein said display is externally mounted on a face of said module.

Al <sup>29</sup>  
~~64.~~ (New) The eye viewing device of claim 1, wherein said housing is hand held, wherein said device is configured for viewing a retina, wherein said replaceable module further includes a display in communication with said processor system, and wherein said display is rigidly mounted on said module.

<sup>30</sup>  
~~65.~~ (New) The eye viewing device of claim 1, wherein said housing is hand held, wherein said device is configured for viewing a retina, wherein said replaceable module further includes a display in communication with said processor system, and wherein said display is internally mounted in an interior of said module.

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~~66.~~ (New) The eye viewing device of claim 1, wherein said housing is hand held, wherein said device is configured for viewing a retina, wherein said replaceable module further includes a display in communication with said processor system, and wherein said display is mounted on a top of said module.

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~~67.~~ (New) The eye viewing device of claim 1, wherein said illumination system projects a converging cone of light.

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~~68.~~ (New) The eye viewing device of claim 1, wherein said illumination system projects a converging cone of light converging at an apex, and wherein said imaging system includes an aperture stop disposed conjugate to said apex.

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~~69.~~ (New) The eye viewing device of claim 2, wherein said imaging system includes an aperture stop disposed so that said aperture stop is substantially conjugate a pupil of a patient when said device is in an operative position.

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~~70.~~ (New) The eye viewing device of claim 1, wherein said imaging system includes an aperture stop and an objective lens, and wherein said illumination system includes a light source, and wherein a surface of said objective lens closest said light source is curved substantially concentric about an aperture of said aperture stop.

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~~71.~~ (New) A retinal viewing device system comprising:  
a hand held housing having an observer end and a patient end;  
an illumination system at least partially disposed



in said housing;

an imaging system at least partially disposed in said housing;

a module holder defined by said housing at said observer end; and

at least first and second replaceable modules, each replaceably receivable in said holder, said holder adapted to receive one of said modules at a given time, wherein said first module comprises an eyepiece lens facilitating direct view of an eye structure and said second module comprises at least an image sensor for generating image signals corresponding to an eye structure.

a' <sup>49</sup> ~~72~~. (New) The system of claim <sup>48</sup> ~~71~~, wherein said second module further comprises an electronic display.

<sup>50</sup> ~~73~~. (New) The system of claim <sup>48</sup> ~~71~~, wherein said second module further comprises a face mounted display.

<sup>51</sup> ~~74~~. (New) The system of claim <sup>48</sup> ~~71~~, wherein said second module further comprises an externally mounted display.

<sup>52</sup> ~~75~~. (New) The system of claim <sup>48</sup> ~~71~~, wherein said second module further comprises an electronic display mounted in an interior of said module.

<sup>53</sup> ~~76~~. (New) The system of claim <sup>48</sup> ~~71~~ further comprising a communication link component for facilitating communication of image information from said housing.

<sup>54</sup> ~~77~~. (New) The system of claim <sup>48</sup> ~~71~~, wherein said illumination system includes a light generating light source,

wherein said housing includes a first part extending coextensively with an imaging axis of said imaging system, and a second part extending transverse to said first part, and wherein said light generating light source is disposed in said second part.

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78. (New) The system of claim 71, wherein said holder and said second module comprise complementary mating connectors.

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79. (New) The system of claim 71, wherein said illumination system projects a converging cone of light.

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80. (New) The system of claim 71, wherein said illumination system and said imaging system include a common objective lens.

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81. (New) The system of claim 71, wherein said illumination system projects a converging cone of light converging at an apex, and wherein said imaging system includes an aperture stop disposed to be substantially coaxial with respect to an imaging axis of said imaging system and substantially conjugate said apex.

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82. (New) The system of claim 71, wherein said imaging system includes an aperture stop, and wherein said eye viewing device includes an objective lens and an internal light source, wherein a surface of said objective lens closest to said light source is curved substantially concentric about a center of an aperture of said aperture stop, whereby internal glare in said device is reduced.

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83. (New) The system of claim 71, wherein said

illumination system projects light through a pupil, and wherein said imaging system includes an aperture disposed substantially coaxial about an imaging axis of said imaging system and substantially conjugate said pupil, when said eye viewing device is in an operative position.

a' ~~84.~~ (New) A hand held retina viewing device comprising:  
61 a housing;  
an image sensor;  
an imaging system including an imaging axis;  
an illumination system configured to project light through a pupil; and  
a moving mirror disposed in said housing moveable between a first position at which a retinal image focal plane is defined at an active surface of said image sensor and a second position permitting visual viewing of said retina, wherein said imaging system includes an aperture stop disposed in said housing substantially coaxially about said imaging axis and substantially conjugate said pupil, wherein said device is in an operative position.

62 ~~85.~~ (New) The device of claim ~~84~~, further including a holder receiving a replaceable module, and wherein said moving mirror is incorporated in a replaceable module replaceably received in said holder.

63 ~~86.~~ (New) The eye viewing device of claim ~~84~~, wherein an aperture of said aperture stop is sized to substantially correspond to a size of said pupil.

64 ~~87.~~ (New) The eye viewing device of claim ~~84~~, wherein an aperture of said aperture stop is sized substantially

according to the formula,  $d=2m$  millimeters, where  $d$  is a diameter of the aperture and  $m$  is the magnification of said pupil in a plane of said aperture stop.

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88. (New) The eye viewing device of claim 84, wherein said illumination system includes a light source positioned off-axis with respect to said imaging axis, whereby internal and corneal glare in said device is reduced.

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89. (New) The eye viewing device of claim 84, wherein said off-axis positioned light source is a light generating light source.

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90. (New) The eye viewing device of claim 84, wherein said off-axis positioned light source is provided by a light reflective element.

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91. (New) The eye viewing device of claim 84, wherein said imaging system includes an objective lens and said illumination system includes a light source, said objective lens having a first surface closest to said light source curved substantially concentric about a center of an aperture of said aperture stop, whereby internal glare in said device is reduced.

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92. (New) The eye viewing device of claim 84, wherein said illumination system includes a light source positioned outside of a border between received and blocked light defined by said aperture stop, whereby said light source has no obscuring effect on images received by said viewing device.

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93. (New) The eye viewing device of claim 84, wherein

said illumination system includes a light source positioned outside of a border between received and blocked light defined by said aperture stop and wherein said imaging system includes an objective lens having a curved first surface curved concentric about a center of an aperture of said aperture stop, whereby said light source has no obscuring effect on images received by said viewing device, and whereby incident light reflected from said first surface is blocked by said aperture stop.

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94. (New) The eye viewing device of claim 84, wherein said imaging system is devoid of a beam splitter. 61

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95. (New) The eye viewing device of claim 84, wherein a retinal field of view of said imaging system is larger than a retinal area of illumination of said illumination system. 61

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96. (New) The eye viewing device of claim 84, wherein a retinal field of view of said imaging system is between about 15 to 30 percent larger than a retinal area of illumination of said illumination system. 61

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97. (New) The eye viewing device of claim 84, wherein said aperture stop is disposed in said device so that said aperture stop is substantially conjugate to said pupil when said illumination system projects substantially a maximum amount of light through said pupil. 61

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98. (New) The eye viewing device of claim 84, wherein said imaging system includes an objective lens disposed in a path of illumination light rays generated by said illumination system. 61

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99. (New) The eye viewing device of claim 84, wherein  
said illumination system includes an objective lens disposed  
so that said imaging axis intersects said objective lens.

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100. (New) A hand held retina viewing device comprising:  
a housing;  
an image sensor;  
an imaging system including an imaging axis;  
an illumination system projecting a converging cone  
of light converging at an apex and diverging thereafter; and  
a moving mirror disposed in said housing moveable  
between a first position at which a retinal image focal plane  
is defined at an active surface of said image sensor and a  
second position permitting visual viewing of said retina,  
wherein said imaging system further includes an  
aperture stop disposed in said housing substantially conjugate  
to said apex.

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101. (New) The device of claim 100, further including a  
holder receiving a replaceable module, and wherein said moving  
mirror is incorporated in a replaceable module replaceably  
received in said holder.

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102. (New) The eye viewing device of claim 100, wherein  
an aperture stop is sized to substantially correspond to a  
size of said pupil.

80  
103. (New) The eye viewing device of claim 100, wherein  
an aperture of said aperture stop is sized substantially  
according to the formula  $d=2m$  millimeters where  $d$  is a  
diameter of the aperture and  $m$  is the magnification of said

pupil in a plane of said aperture stop.

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~~104.~~ (New) The eye viewing device of claim ~~100~~, wherein said illumination system includes a light source positioned off-axis with respect to said imaging axis, whereby internal and corneal glare in said device is reduced.

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~~105.~~ (New) The eye viewing device of claim ~~104~~, wherein said off-axis positioned light source is a light generating light source.

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~~106.~~ (New) The eye viewing device of claim ~~104~~, wherein said off-axis positioned light source is provided by a light reflective element.

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~~107.~~ (New) The eye viewing device of claim ~~100~~, wherein said imaging system includes an objective lens and said illumination system includes a light source, said objective lens having a first surface closest to said light source curved substantially concentric about a center of an aperture of said aperture stop, whereby internal glare in said device is reduced.

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~~108.~~ (New) The eye viewing device of claim ~~100~~, where said illumination system includes a light source positioned outside of a border between received and blocked light defined by said aperture stop, whereby said light source has no obscuring effect on images received by said viewing device.

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~~109.~~ (New) The eye viewing device of claim ~~100~~, wherein said illumination system includes a light source positioned outside of a border between received and blocked light defined

by said aperture stop and wherein said imaging system includes an objective lens having a curved first surface curved concentric about a center of an aperture of said aperture stop, whereby said light source has no obscuring effect on images received by said viewing device, and whereby incident light reflected from said first surface is blocked by said aperture stop.

~~87~~ 77  
110. (New) The eye viewing device of claim 100, wherein said device is devoid of a beam splitter.

~~88~~ 77  
111. (New) The eye viewing device of claim 100, wherein a retinal field of view of said imaging system is larger than a retinal area of illumination of said illumination system.

~~89~~ 77  
112. (New) The eye viewing device of claim 100, wherein a retinal field of view of said imaging system is between about 15 to 30 percent larger than a retinal area of illumination of said illumination system.

~~90~~ 77  
113. (New) The eye viewing device of claim 100, wherein said aperture stop is disposed in said device so that said aperture stop is substantially conjugate to said pupil when said illumination system projects substantially a maximum amount of light through said pupil.

~~91~~ 77  
114. (New) The eye viewing device of claim 100, wherein said imaging system includes an objective lens disposed in a path of illumination light rays generated by said illumination system.

~~92~~ 77  
115. (New) The eye viewing device of claim 100, wherein



said illumination system includes an objective lens disposed so that said imaging axis intersects said objective lens.

<sup>93</sup>  
116. (New) A hand held retina viewing device comprising:  
a housing;  
an image sensor;  
an imaging system including an imaging axis and an aperture stop;  
an illumination system including a light source; and  
a moving mirror disposed in said housing moveable between a first position at which a retinal image focal plane is defined at an active surface of said image sensor and a second position permitting visual viewing of said retina, wherein said imaging system further includes an objective lens having a surface closest to said light source curved substantially concentric about a center of an aperture of said aperture stop, whereby internal glare in said device is reduced.

<sup>94</sup>  
117. (New) The device of claim <sup>93</sup>116, further including a holder receiving a replaceable module, and wherein said moving mirror is incorporated in said replaceable module replaceably received in said holder.

<sup>95</sup>  
118. (New) The eye viewing device of claim <sup>93</sup>116, wherein an aperture stop is sized to substantially correspond to a size of said pupil.

<sup>96</sup>  
119. (New) The eye viewing device of claim <sup>93</sup>116, wherein an aperture of said aperture stop is sized substantially according to the formula  $d=2m$  millimeters where  $d$  is a diameter of the aperture and  $m$  is the magnification of said

pupil in a plane of said aperture stop.

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120. (New) The eye viewing device of claim ~~116~~<sup>93</sup>, wherein said illumination system includes a light source positioned off-axis with respect to said imaging axis, whereby internal and corneal glare in said device is reduced.

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121. (New) The eye viewing device of claim ~~116~~<sup>93</sup>, wherein said off-axis positioned light source is a light generating light source.

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122. (New) The eye viewing device of claim ~~116~~<sup>93</sup>, wherein said off-axis positioned light source is provided by a light reflective element.

100  
123. (New) The eye viewing device of claim ~~116~~<sup>93</sup>, wherein said imaging system includes an objective lens and said illumination system includes a light source, said objective lens having a first surface closest to said light source curved substantially concentric about a center of an aperture of said aperture stop, whereby internal glare in said device is reduced.

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124. (New) The eye viewing device of claim ~~116~~<sup>93</sup>, where said illumination system includes a light source positioned outside of a border between received and blocked light defined by said aperture stop, whereby said light source has no obscuring effect on images received by said viewing device.

102  
125. (New) The eye viewing device of claim ~~116~~<sup>93</sup>, wherein said illumination system includes a light source positioned outside of a border between received and blocked light defined

by said aperture stop and wherein said imaging system includes an objective lens having a curved first surface curved concentric about a center of an aperture of said aperture stop, whereby said light source has no obscuring effect on images received by said viewing device, and whereby incident light reflected from said first surface is blocked by said aperture stop.

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~~126~~. (New) The eye viewing device of claim ~~116~~, wherein said device is devoid of a beam splitter.

104

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~~127~~. (New) The eye viewing device of claim ~~116~~, wherein a retinal field of view of said imaging system is larger than a retinal area of illumination of said illumination system.

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~~128~~. (New) The eye viewing device of claim ~~116~~, wherein a retinal field of view of said imaging system is between about 15 to 30 percent larger than a retinal area of illumination of said illumination system.

106

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~~129~~. (New) The eye viewing device of claim ~~116~~, wherein said aperture stop is disposed in said device so that said aperture stop is substantially conjugate to said pupil when said illumination system projects substantially a maximum amount of light through said pupil.

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~~130~~. (New) The eye viewing device of claim ~~116~~, wherein said imaging system includes an objective lens disposed in a path of illumination light rays generated by said illumination system.

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~~131~~. (New) The eye viewing device of claim ~~116~~, wherein

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said illumination system includes an objective lens disposed so that said imaging axis intersects said objective lens.

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